

**PATENT**

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231 on October 3, 2000.

By: Rona L. Meleanek  
Rona L. Meleanek

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of **Wallace T.Y. Tang**

Serial No.: 07/996,817

Examiner: **H. Pham**

Filed: **December 28, 1992**

Art Unit: **2505**

For: **IN-SITU REAL-TIME MONITORING TECHNIQUE AND APPARATUS  
FOR ENDPOINT DETECTION OF THIN FILMS DURING  
CHEMICAL/MECHANICAL POLISHING PLANARIZATION**

Assistant Commissioner for Patents  
Washington, D.C. 20231

**REVOCATION AND NEW APPOINTMENT OF POWER OF ATTORNEY AND  
CHANGE OF CORRESPONDENCE ADDRESS**

The undersigned, being sole owner of total interest of this application, hereby  
revokes all powers of attorney previously granted in this application and hereby appoints

Joseph Bach	37,771	Robert W. Mulcahy	25,436
Sarah Brashears	37,087	Peter J. Sgarbossa	25,610
Lawrence Edelman	25,226	Donald Verplancken	33,217
Michael Einschlag	29,301	James C. Wilson	35,412
Raymond Kam-On Kwong	37,165	David J. Goren	34,609
Frederick H. Rabin	24,488	William J. Egan	28,411
William E. Booth	28,933	Eric L. Prah	32,590

as attorneys with full power of substitution and revocation to prosecute this application  
and to transact all business in the United States Patent and Trademark Office connected

therewith, and hereby request that all correspondence regarding this application be sent to:

Applied Materials, Incorporated  
Attn: Patent Group  
2881 Scott Blvd., M/S 2061  
Santa Clara, CA 95050  
Tel: (408) 235-6536  
Facsimile: (408) 986-3090

Respectfully submitted,

Signature: 

Printed Name: Joseph J. Sweeney

Title: Group Vice President, Legal Affairs  
& Intellectual Property

Date: Sept. 26, 2000

**CERTIFICATE UNDER 37 CFR 3.73(b)**

**Applicant: Wallace T.Y. Tang**

**Application No./Patent No.: 07/996,817**

**For: IN-SITU REAL-TIME MONITORING TECHNIQUE AND APPARATUS FOR  
ENDPOINT DETECTION OF THIN FILMS DURING CHEMICAL/MECHANICAL  
POLISHING PLANARIZATION**

**APPLIED MATERIALS, INC., a corporation,**

certifies that it is the assignee of the entire right, title and interest in the patent application identified above by virtue of either:

A. [     ] An assignment from the inventor(s) of the patent application identified above. The assignment was recorded in the Patent and Trademark Office at Reel     , Frame     , or for which a copy thereof is attached.

OR

B. [     ] A chain of title from the inventor(s) of the patent application identified above, to the current assignee as shown below:

1. From:                      To:  
The document was recorded in the Patent and Trademark Office at Reel     , Frame     , or for which a copy thereof is attached.
2. From:                      To:  
The document was recorded in the Patent and Trademark Office at Reel     , Frame     , or for which a copy thereof is attached.
3. From:                      To:  
The document was recorded in the Patent and Trademark Office at Reel     , Frame     , or for which a copy thereof is attached.

[     ] Additional documents in the chain of title are listed on a supplemental sheet.

[X] Copies of assignments or other documents in the chain of title are attached.

The undersigned has reviewed all the documents in the chain of title of the patent application identified above and, to the best of undersigned's knowledge and belief, title is in the assignee identified above.

The undersigned (whose title is supplied below) is empowered to sign this certificate on behalf of the assignee.

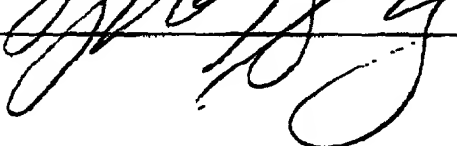
00996817-55250500

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: Sept 26, 2000

Name: Joseph J. Sweeney

Title: Group Vice President, Legal Affairs & Intellectual Property

Signature: 

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26\_902' DOC

## PATENT ASSIGNMENT

WHEREAS, WALLACE T. Y. TANG, having a residence at P.O. Box 4408, 5 Deerwood Trail, Warren, NJ 07059 (hereinafter referred to as "Assignor") owns right, title, and interest in and to U.S. Patent Application Number 07/996,817, filed on December 28, 1992, entitled IN-SITU REAL-TIME MONITORING TECHNIQUE AND APPARATUS FOR ENDPOINT DETECTION OF THIN FILMS DURING CHEMICAL/MECHANICAL POLISHING PLANARIZATION (hereinafter referred to as "Patent Application"); and

WHEREAS, APPLIED MATERIALS, INC., having offices at P.O. Box 450A, Santa Clara, CA 95052 (hereinafter referred to as "Assignee"), desires to acquire Assignor's entire right, title, and interest in and to said Patent Application, and in and to the inventions disclosed in said Patent Application, and to the Future Patents (as hereinafter defined).

NOW, THEREFORE, for and in consideration of One Dollar (\$1.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor does hereby sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, Assignor's full right, title, and interest in and to said Patent Application, and to all future patents which may be granted therefor throughout the world, and all division, reissues, substitutions, continuations, continuations-in-part and extensions thereof (collectively, "Future Patents"), together with all claims, causes of action and damages for past infringement, if any, of said Patent Application and Future Patents; and Assignor hereby authorizes and requests the United States Patent and Trademark Office and other patent offices throughout the world to issue all Future Patents resulting therefrom insofar as Assignor's interest is concerned, to the said Assignee of Assignor's entire right, title, and interest.

Assignor also hereby sells and assigns to Assignee, its successors, assigns and legal representatives Assignor's full right, title, and interest to inventions disclosed in said Patent Application and Future Patents throughout the world, including the right to file applications and obtain patents, utility models, industrial models and designs for said inventions in Assignee's own name throughout the world including all rights of priority, all rights to publish cautionary notices reserving ownership of said inventions and all rights to register said inventions in appropriate registries; and Assignor further agrees to execute any and all powers of attorney, applications, assignments, declarations, affidavits, and any other papers in connection therewith reasonably necessary to perfect such right, title, and interest in Assignee, its successors, assigns and legal representatives.

Assignor hereby further agrees that Assignor will communicate to said Assignee, or to its successors, assigns and legal representatives, any facts known to Assignor respecting any improvements, and, at the expense of said Assignee, will testify in any legal proceedings, sign all lawful papers, execute all divisional, continuation, continuation-in-part, reissue and substitute applications, make all lawful oaths, and exert reasonable efforts to vest title in said Assignee and to aid said Assignee, its successors, assigns and legal representatives in obtaining and enforcing proper protection for said Patent Application and Future Patents in such countries as Assignee may elect.

IN WITNESS WHEREOF, Assignor has caused this instrument to be executed effective July 31, 2000.

By:   
Name: Wallace T. Y. Tang

UTILITY PATENT  
OR DESIGN  
SOLE OR JOINT

**WEGNER, CANTOR, MUELLER & PLAYER**  
UNITED STATES LETTERS PATENT  
DECLARATION AND POWER OF ATTORNEY

ATTORNEY'S DOCKET NO

P-2921-23619

As a below named inventor, I declare that I believe I am the original, first and sole inventor if only one name is listed at item 201 below, or a joint inventor if plural names are listed below at items 201 et. seq. of subject matter which is claimed and for which a patent is sought for

the invention entitled: **IN-SITU REAL-TIME MONITORING TECHNIQUE AND APPARATUS FOR ENDPOINT DETECTION OF THIN FILMS DURING CHEMICAL/MECHANICAL** which is described and claimed in:  
☐ the attached specification ☒ the specification in application Serial No. 07/996,817 filed December 28, 1992  
(for declaration not accompanying application papers)

and (if applicable) amended on ..... filed ..... and as amended on ..... (if any)  
☐ international (PCT) application No. ....

I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 I hereby claim the benefit of priority, under Title 35, United States Code, §119, of any foreign application(s) for patent or inventors certificate having a filing date before that of the application for which priority is claimed.

I hereby claim the benefit, under Title 35, United States Code, §120, of any U.S. application(s) listed in item 105 below. If this application is a continuation-in-part, insofar as the subject matter of any of the claims thereof is not disclosed in the prior U.S. application(s) identified in item 105 below in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior U.S. application(s) identified in item 105 below and the national or PCT international filing date of this application.

103	FOREIGN APPLICATION(S), IF ANY, FILED WITHIN 12 (6 if a Design) MONTHS PRIOR TO THE FILING DATE OF THIS APPLICATION THE PRIORITY OF WHICH WHERE PERMITTED IS HEREBY CLAIMED UNDER 35 U.S.C. §119			
	COUNTRY	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED YES NO

106	THIS APPLICATION IS A:		SERIAL NO	FILED
	<input type="checkbox"/> CONTINUATION <input type="checkbox"/> DIVISION	<input type="checkbox"/> CONTINUATION-IN-PART OF PRIOR U.S. APPLICATION		

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

HAROLD C. WEGNER  
Registration No. 25,258

HERBERT I. CANTOR  
Registration No. 24,392

HELMUTH A. WEGNER  
Registration No. 17,033

FRANKLIN D. WOLFFE  
Registration No. 19,724

DOUGLAS P. MUELLER  
Registration No. 30,300

WILLIAM E. PLAYER  
Registration No. 31,409

SEND CORRESPONDENCE TO:	WEGNER, CANTOR, MUELLER & PLAYER P.O. Box 18218 Washington, D.C. 20036-8218	DIRECT TELEPHONE CALLS TO 202-887-0400
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Inventor(s) name must include at least one unabbreviated first or middle name.

201	FULL NAME OF INVENTOR	LAST NAME TANG	FIRST NAME Wallace	MIDDLE NAME T. Y.
	RESIDENCE CITIZENSHIP	CITY OR OTHER LOCATION Warren	STATE OR COUNTRY New Jersey	CITIZENSHIP USA
	POST OFFICE ADDRESS	P. O. Box 4408, 5 Deerwood Trail		
202	FULL NAME OF INVENTOR	LAST NAME	FIRST NAME	MIDDLE NAME
	RESIDENCE CITIZENSHIP	CITY OR OTHER LOCATION	STATE OR COUNTRY	CITIZENSHIP
	POST OFFICE ADDRESS			
203	FULL NAME OF INVENTOR	LAST NAME	FIRST NAME	MIDDLE NAME
	RESIDENCE CITIZENSHIP	CITY OR OTHER LOCATION	STATE OR COUNTRY	CITIZENSHIP
	POST OFFICE ADDRESS			

☐ Fourth (and more) coinventors on page 2

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

SIGNATURE OF INVENTOR 201	SIGNATURE OF INVENTOR 202	SIGNATURE OF INVENTOR 203
DATE 2/23/93	DATE	DATE

# SMALL ENTITY DECLARATION

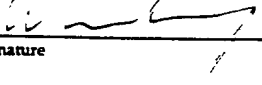
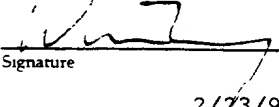
☒ APPLICANT OR PATENTEE Wallace T. -Y. TANG  
☒ SERIAL NO 07/996,817 ☐ PATENT NO \_\_\_\_\_ ATTORNEY'S DOCKET NO P2921-23619  
☒ FILED OR ISSUED December 28, 1992 ☐ SUBMITTED HEREWITH  
 FOR IN-SITU REAL-TIME MONITORING TECHNIQUE AND APPARATUS FOR ENDPOINT  
DETECTION OF THIN FILMS DURING CHEMICAL/MECHANICAL POLISHING PLANARIZA

I(we) hereby declare that I(we) am(are) entitled to the benefit of small entity status with respect to the above-identified application or patent for purposes of paying reduced fees under 35 USC 41(a) & (b) to the U.S. Patent and Trademark Office.

- ☒ A. INDEPENDENT INVENTOR  
 I(we) qualify as a(n) independent inventor(s) as defined in 37 CFR 1.9(c).
- ☐ B. INDIVIDUAL NON-INVENTOR  
 I would qualify as an independent inventor as defined in 37 CFR 1.9(c) if I had made the invention.
- ☐ C. SMALL BUSINESS CONCERN  
 I am ☐ THE OWNER ☐ AN OFFICIAL of the small business concern identified below and am empowered to act on behalf of the concern. The concern qualifies under 37 CFR 1.9(d) and 13 CFR 121.3-18. Rights under contract or law have been conveyed to and remain with the concern and are exclusive unless a checkmark is placed here ☐ and another Declaration on behalf of another entity is filed herewith.
- ☐ NON-PROFIT ORGANIZATION  
 I am an official empowered to act on behalf of the non-profit organization identified below. The organization qualifies under 37 CFR 1.9(e), sub-section: ☐ (1) ☐ (2) ☐ (3) ☐ (4). Rights under contract or law have been conveyed to and remain with the organization and are exclusive unless a checkmark is placed here ☐ and another Declaration on behalf of another entity is filed herewith.

I(we) acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

I(we) hereby declare that all statements made herein of my(our) own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Name of Inventor	<u>Wallace T.-Y. Tang</u>	Signature <u></u>	Date <u>2/23/93</u>
Name of Inventor		Signature _____	Date _____
Name of Inventor		Signature _____	Date _____
Name of Concern or Organization	Address <u>5 Deerwood Trail, Box: 4408</u> <u>Warren, NJ 07059</u>		
By	<u>Wallace T.-Y. Tang</u>	Signature <u></u>	Date <u>2/23/93</u>
Title		Name of Person Signing _____	Date _____